

APPENDIX C

TIMBER PRODUCTION CAPABILITY CLASSIFICATION

The Timber Production Capability Classification (TPCC) system is a method of evaluating which forest lands are suitable to produce timber on a sustained yield basis. There are three major classes of land: nonforest, noncommercial forest, and commercial forest. The commercial forest land is separated into three types: fragile sites, problem reforestation sites, and nonproblem sites.

NONFOREST LANDS

The nonforest lands are characterized by bunchgrass and wet meadow grasslands, brush fields, and strip mine areas. The sites are not capable of at least 16.7 percent stocking by commercial species. These sites are not included in the sustained yield timber production base.

NONCOMMERCIAL FOREST LANDS

The noncommercial forest lands are divided into three types: noncommercial species sites, low sites, and conflicting rock sites.

Noncommercial Species Sites (NT-W)

The noncommercial species sites are not capable of producing 20 cubic feet/acre/year of commercial tree species. They are dominated by hardwoods or juniper. These sites are withdrawn from the sustained yield timber production base.

Low Sites (LS-W)

The low sites are not capable of producing 20 cubic feet/acre/year of commercial tree species at culmination of mean annual increment. These sites are generally on south or west aspects with 20 to 60 percent slopes and skeletal soils. Common habitat types are 100 series, 210, 220, 230, 311, and 321 (USDA, FS 1977). Full stocking is generally 40 to 90 percent of normal stocking. Low sites are withdrawn from the sustained yield timber production base.

Conflicting Rock Sites (CR-W)

Conflicting rock sites have exposed rock that prohibits timber management activities by restricting or prohibiting the operation of conventional logging equipment. The location and orientation of the rock is more important than ground coverage. Talus or rock outcrops covering an excess of 50 percent of the site or rock shelves traversing slopes would be considered conflicting rock. These sites are withdrawn from the sustained yield timber production base.

COMMERCIAL FOREST LANDS

Fragile Sites

Slope Gradient Restriction (FG-R)

Timber harvest in areas with slopes in excess of 60 percent should limit soil disturbance through use of skyline cable or aerial yarding. Road locations are likely to be constrained by topography and type of yarding system.

Groundwater Restriction (FW-R)

Groundwater is a factor in areas with saturation within 60 inches of the soil surface or mottling within 36 inches of the surface. These conditions commonly occur in riparian areas and habitat types 630 and 650 (USDA, FS 1977) on slopes or benches. They are often associated with seasonal standing water or marsh type vegetation. These conditions indicate that regeneration harvest methods should be restricted to shelterwood or selection types avoiding complete removal of vegetation. Roads will probably require special drainage design and surfacing, and may be limited or prohibited within this area. Machine traffic may be limited to frozen or snow covered ground.

Mass Failure Restriction (FM-R)

Mass failure is a factor in areas with visible evidence of slumps, slides, or flows. These commonly occur on slopes from 30 to 70 percent in Tertiary volcanics, Tertiary sedimentary rock, siltstones of the Amsden Formation, and argillites of the McNamara Formation. In these areas, regeneration harvest methods should generally be restricted to shelterwood or selection systems on slopes over 40 percent. Roads should avoid these areas wherever possible. Road location and design should avoid intercepting and concentrating slope drainage, undercutting toe slopes of earthflows or slumps, and loading the heads of slumps with road fill. Special drainage and prompt seeding of disturbed soils may reduce slope failure.

Shallow Soil Restriction (FS1-R)

Shallow soils are a factor where soil depth to bedrock is less than 20 inches. This commonly occurs on slopes in excess of 30 percent. Talus or scree on 50 percent or more of the area also indicates shallow soils. Silvicultural systems, site preparation, and slash disposal should be designed to minimize exposure and disturbance of the mineral soil.

Erosive Soil Restriction (FS2-R)

Erosive soils are a factor where soils with granitic parent materials occur on slopes greater than 15 percent, where soils have more than 35 percent clay and occur on slopes over 30 percent, and where other soils occur on slopes over 70 percent. Silvicultural systems, site preparation, and slash disposal should be designed to minimize exposure of mineral soil. Prompt seeding and water barring should follow soil disturbance on skid trails and landings. Roads will require additional drainage and stabilization.

Soil Compaction Restriction (FS3-R)

Silt, silt loam, and loam soils with 27 to 35 percent clay and less than 25 percent coarse fragments in the soil horizons within 10 inches of the surface are prone to soil compaction. Machine traffic may be limited on these soils to periods when the soil is dry or snow covered. Slopes in excess of 30 percent should be yarded by cable or aerial methods.

Problem Reforestation Sites

Heat and Drought Sites (RH1-R)

These sites are warm and dry on south and west aspects with slopes between 20 and 60 percent, or on ridge tops. They are characterized by skeletal and shallow soils with common habitat types of 100 series, 210, 220, 230, 262, 311, and 321. Other habitat types may be present: 312, 323, and 324 (USDA, FS 1977).

These sites generally should use regeneration harvest methods such as shelterwood or selection systems with natural regeneration. Site preparation should maintain 10 to 15 tons/acre of down woody material over 6 inches in diameter to provide dead shade. Plans for allowable cut should use a 30 year regeneration lag period and anticipate reduced yields due to the increased regeneration lag period. Underplanting may be used with shelterwood or selection systems where natural seed sources are not adequate to provide natural regeneration.

Heat and Drought Sites (RH2-R)

These sites are moderately warm and dry on south and west aspects with slopes between 10 to 40 percent at elevations generally greater than 5,400 feet. They are characterized by habitat types 261, 280, 312, 323, 324, 330, and 690 (USDA, FS 1977).

These sites generally should use regeneration harvest methods such as shelterwood or selection systems with natural and artificial regeneration. Site preparation guidelines should address problems due to grass, sedge, and forb competition. A normal regeneration lag period of 15 years is anticipated. Underplanting should be used with shelterwood and selection systems where natural seed sources are not adequate to provide prompt natural regeneration.

Inadequate Moisture Sites (RM-R)

These sites occur on north and east aspects on 20 to 60 percent slopes with skeletal and shallow soils. Habitat types include 261, 280, 312, and 323 (USDA, FS 1977). Full stocking is 50 to 80 percent of normal yield table stocking. Competing vegetation, primarily grasses and sedges, present serious reforestation problems.

These sites generally should use regeneration harvest methods favoring natural regeneration. Site preparation guidelines should address problems due to grass, sedge, and forb competition. A normal regeneration lag period of 15 years is anticipated. Underplanting should be used with shelterwood systems where natural seed sources are not adequate to provide prompt natural revegetation.

Heat and Drought Sites (RH-W)

These are sites that meet criteria for Heat and Drought Sites (RH1-R). However, they are stands of CFL that are understocked or nonstocked with commercial species and are not expected to regenerate naturally within 30 years. They include some stands that are fully stocked but present reforestation problems and are isolated from other CFL.

Excessive Water Sites (RW-R)

These sites have heavy clay soils with well developed profiles and claypans. They are commonly found on north and east aspects or drainage bottoms. The habitat types include 630 and 650 (USDA, FS 1977).

Silvicultural prescriptions should emphasize natural regeneration. Machine traffic should be restricted to dry or frozen soils.

Excessive Water Sites (FW-RW-W)

These sites have permanent or seasonal standing water, which tends to retard the reforestation of commercial species. These sites are commonly found near rivers, streams, or wet meadows. They are withdrawn from the sustained yield timber production base.

Frost Sites (RF-R)

These sites are in depressions or benches on north or east aspects where topography tends to pool cool air. Habitat types include 250, 623, and 640 (USDA, FS 1977). Silt and silt loam soil texture are common, and the presence of higher elevation species at lower elevations may be an indicator.

Selection of species and stock for planting should recognize the potential for frost damage to seedlings and frost heaving. Silviculture systems, unit layout, and site preparation should be designed to reduce pooling of cool air.

Competing Vegetation and Sod Sites (CG1-R)

Other TPCC classifications take priority over this classification but may have the same site preparation problems described here. These problems are due to grass, sedge, and forb competition. The understory of these sites are dominated or potentially may be dominated by rhizomatous grasses and sedges such as pine grass or elk sedge. Habitat types include 312, 322, 323, and 324 (USDA, FS 1977).

These sites generally should use regeneration harvest methods such as shelterwood or selection systems; adequate regeneration should be well established before the final overstory is removed. Sites, where natural regeneration is inadequate three years following the regeneration harvest, should be scheduled for planting. Where planting is scheduled but cannot be done for more than two years following harvest, site preparation should be delayed and only the fuel reduced. Extensive hand scalping, machine scarification, or herbicide use prior to planting is anticipated.

Competing Brush Vegetation Sites (CG2-R)

These sites are dominated by menziesia, alder, willow, or ninebark brush on north and east aspects in drainage bottoms or on concave slopes. Site preparation to allow seedling establishment will be done by prescribed burning, herbicides, or mechanical scarification.

Nonproblem Forest Sites

Commercial forest land that does not classify in any of the previously mentioned categories may be carried in the sustained yield timber production land base. These areas are not expected to require any special techniques to protect the basic timber growing potential and should provide prompt regeneration.